

A NEW CLOUDFOREST *TRACHYSPHYRUS* FROM ECUADOR
AND COLOMBIA (HYMENOPTERA : ICHNEUMONIDAE)

Charles C. Porter *

Department of Biological Sciences
Fordham University, Bronx, New York 10458

Abstract

Trachysphyrus townesi, n. sp. may be recognized by its golden wings with dark transverse bands, pale fulvous ground color, medially bituberculate clypeal apex, narrow female postpetiole, and its strongly projecting ligulate female propodeal cristae. It is one of the few *Trachysphyrus* to inhabit equatorial cloudforests, the first species described from Colombia, and the third reported from Ecuador.

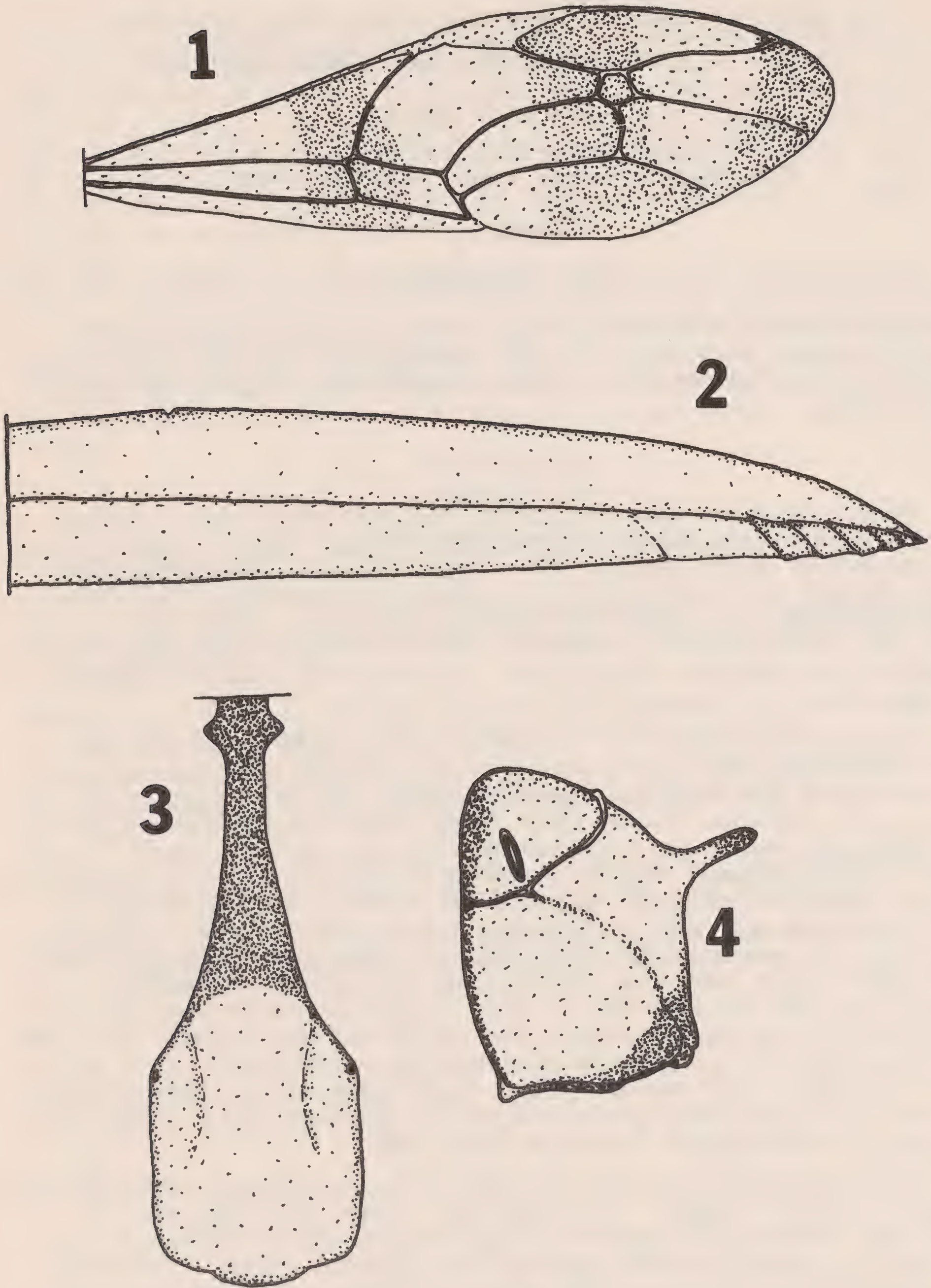
INTRODUCTION

Trachysphyrus has about 200 species that are concentrated in Andean and extratropical South America (Porter 1980: 29-32). Its major centers of radiation include north Argentina (more than 100 species), Neantarctic Chile (30-40 species), the Andes of Bolivia and Peru (25-30 species). One aberrant *Trachysphyrus* has been cited from Guayana and Surinam. Only the group, with a few species scattered throughout the Western Hemisphere from Argentina to the northern United States, represents this genus outside South America.

Trachysphyrus belongs to the Subtribe Ischnina (Townes 1969) of the Tribe Mesostenini. It is closely related to the Holarctic genera *Itamoplex* and *Buathra*, as well as to such basically Sonoran taxa as *Compsocryptus*, *Lanugo*, and *Joppidium*. Townes (1969: 179-181) separated the *Planosae* group, plus many other exclusively South American species, under the generic name *Chromocryptus* Ashmead. Townes' viewpoint represents a conceptual advance over the broader definition of *Trachysphyrus* offered in my 1967 revision of the South American species. *Trachysphyrus* (*sensu* Porter 1967a) surely is polyphyletic and susceptible of division into numerous genera. However, some of its phyletic lines seem connected by annectant species. Consequently, Townes' key (1969: 159-165) does not allow unequivocal routine identification. Furthermore, during yearly fieldwork from 1968-1982 I have amassed more than 100 new species of *Trachysphyrus* from Argentina, north Chile, Bolivia, and Peru. To attain a more rational generic classification of the "trachysphyroid" complex, these undescribed species will have to be diagnosed and compared with the 94 *Trachysphyrus* covered by me in 1967.

In the present contribution I describe a new and aberrant *Trachysphyrus* from Colombia and Ecuador. Previously, only *T. hoplites* Porter and *T. metallicus* Cameron had been known from Ecuador (Porter 1967b), and *Trachysphyrus* never had been reported from Colombia. The new species is easy to recognize and phaenetically unique. However, its relationships to other South American *Trachysphyrus* remain obscure. It may be a specialized offshoot of the *Rufitibia* subgroup (Porter 1967a: 124), but it also shows

* Research Associate, Florida State Collection of Arthropods at Gainesville.



Figs. 1-4. *Trachysphyrus townesi*, n. sp. 1, Fore wing, female paratype. 2, Lateral view of ovipositor tip, female holotype. 3, Dorsal view of first tergite, female paratype. 4, Lateral view of propodeum, female paratype.

features reminiscent of other "trachysphyroid" genera, particularly of *Lanugo*, *Compsocryptus*, and *Cryptopteryx*.

I take special pleasure in dedicating this magnificent ichneumonid to Dr. Henry K. Townes, Jr.

Trachysphyrus townesi, n. sp. (Figs. 1-4)

Female: Color: Antenna pale fulvous on scape, pedicel, and flagellomeres 1-3, yellowish fulvous to yellow on flagellomeres 4-15, and mostly blackish beyond flagellomere 15 or 16; head, body, and legs pale fulvous to yellowish fulvous with faint and irregular dusky staining that is best developed on front, on vertex and upper temples or at least stemmaticum, on tegula interiorly, on more or less of mesoscutum, on some thoracic sutures, sometimes on apex of trochantelli and bases of femora, and on apices of some gastric tergites, as well as with darker markings (black, deep brown, or sometimes light brown) that are distributed as follows: on mandibular teeth; sometimes irregularly and pallidly in dorsal trough of pronotum and on adjoining anterior mesoscutum; narrowly and sometimes pallidly on anterior mesoscutum at base of notaulus; sometimes briefly on mesoscutum above tegula; broadly near apex of mesoscutum, in prescutellar depression, and on anterior scutellum; broadly on prescutellar ridge; in most of meso and metanotal axillary troughs; briefly on upper hind corner of pronotum; in much of area above subalarum; on an extensive area that covers most of prepectus and which above expands rectangularly onto anterior 0.2 of mesepisternum below subalarum; broadly on lower hind corner of mesepisternum and more narrowly dorsad along hind margin of mesepisternum to speculum; on all but dorsal 0.2 of mesepimeron; extensively on mesosternum, with a median subtriangular projection reaching forward along mesosternal sulcus; hind face of metanotum; throughout on upper metapleuron; narrowly on front margin and more broadly on ventral margin and hind corner of lower metapleuron; in trough between metanotum and propodeum and narrowly along dorsal part of front margin of propodeum; broadly but irregularly or incompletely on lateral propodeum between spiracle and base; on about apical 0.5 of crista; irregularly on most of lower 0.5 or more of hind face of propodeum; on basal 0.8 of petiole above and laterally and almost throughout on petiole below; on basal 0.4 of 2nd gastric tergite except for thyridium and part of area between thyridium and base of tergite; on all but apical 0.2 of 3rd gastric tergite; more or less faintly on inner and outer dorso-apical flanges of hind coxa; and on apical 0.5 of tarsal claws; fore wing with 3 dark brown areas as follows: a broad dark cross band occupying most of apical 0.3 of median cell, basal 0.2 of discocubital cell, apical 0.3 of submedian cell, basal 0.5 of 1st brachial cell, and adjoining part of anal cell; a similar brown cross band covering basal 0.5 of radial cell, apical 0.3 of discocubital cell, areolet, almost apical 0.5 of 2nd discoidal cell, and a little more pallidly extending across adjoining part of 2nd brachial cell; and with dark staining also on tip of wing over apical 0.5 of 3rd cubital cell, broadly above and more narrowly ventrad on apex of 3rd discoidal cell, and narrowly on apical margin of wing below 3rd discoidal cell; hind wing with a dusky cloud toward apex of brachiellian cell and with apical 0.2 more conspicuously blackish; wings otherwise golden yellow.

Length of fore wing 12.0-12.5 mm. Flagellum filiform, very long and slender, not flattened below toward apex; 1st segment 5.6-6.4 as long as deep

at apex. Clypeus in profile strongly convex and a little asymmetric, with highest point distad of middle and with apical face steeper than basal; apical margin thin and weakly reflexed, especially laterad, and with the apex itself broad, slightly convex, and interrupted on each side of the middle by a weak tubercle. Malar space 0.95 - 0.97 as long as basal width of mandible. Temple strongly and directly receding in dorsal view; in lateral view 0.36 - 0.38 as long as eye. Occipital and hypostomal carinae: Occipital carina sharp and weakly elevated throughout, joining the only slightly more elevated hypostomal carina well above base of mandible. Pronotum: Dorsal submarginal groove obsolete; dorsal margin not swollen; epomia absent above scrobe, strong in scrobe, and prolonged some distance below onto low front swelling of pronotum. Mesoscutum convex; notaulus very faintly traceable for 0.5 - 0.6 the length of mesoscutum, not impressed; surface mat with abundant, superficial, minute punctures that emit close-packed, short, recumbant setae. Mesopleuron: Subalarum flattened and weakly ledge-like, crescentic in exterior contour, subcarinate on outer margin; surface mat and minutely granular with speculum a little swollen but similar in sculpture to rest of mesopleuron; prepectus without a ridge opposite lower hind corner of pronotum; sternaulus strong basally but becoming abruptly obsolete about 0.5 the distance between prepectal carina and hind corner of mesopleuron. Wing venation: Radial cell 3.9 - 4.6 as long as wide; areolet large, symmetrically pentagonal, intercubiti strongly convergent above, 2nd abscissa of radius 0.7 as long as 1st intercubitus; discocubitus gently and evenly arched, without a ramellus; 2nd recurrent broadly angled at bulla, moderately inclivous above bulla and almost vertical below it; nervulus about 0.20 its length antefurcal, gently inclivous; mediella almost straight on apical 0.6, arched basad; nervellus broken far below middle, upper segment 2.0 - 3.0 as long as lower; axillus paralleling hind margin of wing at about 0.4 the distance between hind margin and submediella, near apex becoming weaker and sometimes curved toward hind margin. Fore tibia elongate, faintly inflated. Hind coxa with a strong, polished subvertical groove located externoventrally near base. Propodeum comparatively short and high; apical face sharply discrete from basal and almost vertical, 1.0 as long as basal; spiracle elongate, 3.6 - 4.0 as long as wide; basal trans-carina on dorsum traceable but weak to partially effaced, broadly curved forward medially, becoming strong laterad and sublaterally raised into a small, crescentic crista; apical trans-carina represented only by its unusually large and strongly projecting, narrowly ligulate cristae, which are 0.5 or more as long as apical face of propodeum; longitudinal carinae absent, except for a foveolate trace of pleural carina; surface mat with tiny, exceedingly dense punctures emitting innumerable, very short, crowded setae that are recumbant on dorsum and tend to be more erect elsewhere, as well as with weak wrinkling along basal trans-carina, variably developed faint transverse wrinkling apicad on basal face and with faint to well developed transversely to longitudinally biased wrinkling on apical face, that is fine to obsolete above and which becomes at least a little stronger ventrad. 1st gastric tergite: Petiole at base with a strong, triangular lateral tooth; postpetiole rather elongate, almost parallel-sided, moderately expanded, 0.88 - 1.0 as wide apically as long from spiracle to apex; ventro-lateral carina absent, except on postpetiole; dorso-lateral carina faintly traceable throughout; dorsal carinae weakly suggested above spiracles on apex of petiole and base of postpetiole; surface of postpetiole mat with fine, minutely granular puncto-reticulation and very dense, short, recumbant setae.

2nd gastric tergite uniformly mat, similar in sculpture and setation to post-petiole; thyridium large, subcircular, removed by a little more than its own length from base of tergite. Gaster elongately fusiform; succeeding tergites similar to 2nd but reareward with progressively finer micro-sculpture and in part dully shining. Ovipositor: Sheathed portion 0.48-0.55 as long as fore wing; straight, moderately stout, compressed; nodus faintly suggested, its position marked by a tiny notch; dorsal valve with a long and gently convex taper between notch and apex, taper accentuated on apical 0.3 of tip; ventral valve on tip with fine, well space, inclivously oblique ridges; tip 0.18-0.21 as high at notch as long from notch to apex.

Male: Differs from female as follows: Color: Scape and pedicel pale fulvous; flagellum pale fulvous on segments 1-10 or 11, becoming tinged with yellow on segments 11 or 12-17 or 18, yellowish fulvous grading into black on 17 or 18, and black on succeeding segments; with black variably developed in mesonotal axillary trough; metanotal axillary trough dull fulvous with brown staining; black area below subalarum sometimes more irregularly shaped than in female, sometimes margined with brownish; dorsal 0.3 of mesepimeron pale fulvous; upper metapleuron with a large, ovoid fulvous blotch; lower metapleuron without any black along ventral margin; spiracular area of propodeum more restrictedly black than in female; no black on propodeal cristae; hind face of propodeum sometimes largely black with a median extention onto dorsal face; 1st gastric segment mostly fulvous with blackish irregularly on basal 0.3 or less of petiole above and dorso-laterally and on about basal 0.5 ventro-laterally and ventrally; sometimes with blackish on basal 0.3 of 3rd tergite or sometimes with tergites 2 and following almost uniformly fulvous and without well defined darker markings, although with some irregular and faint dusky staining; dark bands of fore wing sometimes a little paler than in female, with the apical blotch broader and the 2 cross bands a little narrower.

Length of fore wing 11.5-11.9 mm. Flagellum weakly tapered toward apex and slightly stouter than in female; segments with short, dense, uninterrupted erect setae below; tyloids developed as fine longitudinal ridges on flagellomeres 18-21, those on 18 and 19 nearly percurrent, that on 20 shorter, and tyloid on 21 very short; 1st segment 3.5 as long as deep at apex. Clypeus in profile less strongly raised and more asymmetric than in female, basal face gently convex, apical face short and steep, highest point of clypeus closer to apex than in female. Malar space 0.72-0.80 as long as basal width of mandible. Temple: 0.43-0.48 as long as eye in lateral view. Pronotum: Epomia present only in scrobe, sometimes weak. Mesoscutum similar to female but with the extremely dense setae longer and inconspicuously erect. Mesopleuron: Outer margin of subalarum more sharply carinate than in female; surface dully shining with fine and dense punctures and, on area between prepectus and subalarum, with extensive fine wrinkling that is weak and irregular below but becomes more or less stronger and somewhat longitudinally biased dorsad and dorso-antieriad; speculum finely punctate but not wrinkled. Propodeum in profile gently, convexly, and almost evenly sloping between base and apex; basal and apical faces not sharply discrete; apical face 0.67-0.73 as long as basal; spiracle 2.8-3.0 as long as wide; apical carina represented only by small, triangular, moderately projecting cristae; surface dull to, in places, brightly shining, with much fine wrinkling and abundant small, dense punctures, which are more discrete than in female, and with conspicuous, very dense,

moderately long, erect setae; pleural carina more or less completely defined between spiracle and apex. 1st gastric tergite: Petiole at base with a weak, subtriangular lateral expansion; postpetiole weakly expanded, elongate, 0.61 - 0.66 as wide apically as long from spiracle to apex; dorsal and dorso-lateral carinae scarcely traceable; surface of postpetiole shining with abundant, moderately small, shallow punctures that become sparser on apical 0.5 and which emit long, semirecumbant, extensively overlapping setae. 2nd gastric tergite fully shining with tiny, dense but discrete punctures that emit rather long, semirecumbant, much overlapping setae. Gaster elongate and slightly fusiform; succeeding tergites similar to 2nd but less shining and with even denser minute punctures and strongly overlapping setae.

Holotype: Female, Ecuador, near Baeza at about km 10 on road to Tena, 1800 m, June 8, 1979, C. Porter (CPH, Gainesville). *Paratypes*: Female, Ecuador, same data as type (Gainesville); 2 males, Colombia, Valle, km 8 camino Cali-Dagua, 1800 m, Aug. 29, 1975, L. Stange (Gainesville, Porter).

The holotype will be deposited in the collection of Henry K. Townes, now being transferred to the Center for Parasitic Hymenoptera at the Department of Entomology and Nematology, University of Florida, Gainesville, Florida. One female and 1 male paratype will be placed in the Florida State Collection of Arthropods in Gainesville at the Division of Plant Industry of the Florida Department of Agriculture and Consumer Services. The 2nd male paratype is retained for the author's personal collection (301 North 39th Street, McAllen, Texas 78501).

Relationships: *Trachysphyrus townesi* fits the definition of *Trachysphyrus* as provided by Porter (1967a: 37-38). Its dorsally convergent intercubiti, angled 2nd recurrent, and slender habitus might relate *T. townesi* to the *Rufitibia* subgroup of *Trachysphyrus* (Porter 1967a: 124-125). Indeed, *T. hoplites* Porter (1967b) of this subgroup also occurs in Ecuador and shares with *T. townesi* such specialized features as its gently reflexed clypeal margin, crescentically lamellate subalarum, and unusually long propodeal cristae.

T. townesi differs from all other *Trachysphyrus* by its golden wings with dark cross bands, fulvous ground color, and by the following combined structural features: clypeus with a pair of tiny submedian tubercles on apical margin; notauli extremely faint; areolet with intercubiti strongly convergent above; 2nd recurrent broadly angled at bulla; mediella almost straight on apical 0.6; propodeum in female high with basal and apical faces subequal and sharply discrete but in male gently and evenly sloping between base and apex, with basal trans-carina weak, longitudinal carinae almost absent, and apical trans-carina absent except for its very large and strongly projecting ligulate cristae in the female and small, triangular cristae in the male; propodeal spiracle 2.8 - 4.0 as long as wide; base of female petiole with a large, triangular lateral expansion, of male petiole with a weak and ledge-like excrescence; postpetiole long and little expanded rearward, in female 0.88 - 1.0 as wide at apex as long from spiracle to apex, in male 0.61 - 0.66 as wide; 2nd gastric tergite, and most of body, mat with dense, minute punctures and very dense, tiny setae that are mostly recumbant in female and partly erect in male; ovipositor straight, rather robust, compressed, with nodus indicated only by a minute notch and apex, tip 0.18 - 0.21 as high at notch as long from notch to apex.

Because of its dark-banded wings and fulvous ground color, *T. townesi* superficially resembles many species of *Lanugo* and *Compsocryptus*. These 2 close relatives of *Trachysphyrus* are centered in the Sonoran Region, but have also a few species from Ecuador and elsewhere in South America.

All *Compsocryptus* differ from *T. townesi* in having the 2nd abscissa of the radius as long as the 1st intercubitus; the axillus distant from the hind margin of the wing; the propodeal cristae of both sexes relatively low; the ventro-lateral carina strong and complete on the 1st gastric segment; and the ovipositor upcurved.

Species of *Lanugo* may be separated from *T. townesi* by their lack of tubercles on the clypeal apex; weakly grooved hind coxal base; propodeum with at most moderately large cristae and with the apical trans-carina more or less well defined throughout; and female postpetiole that is usually much wider at apex than long from spiracle to apex. In many features, however, *T. townesi* seems close to *Lanugo*. It might be related to the stock from which that genus was derived.

Cryptopteryx, a cloudforest "trachysphyroid" genus of Andean South America superficially resembles *T. townesi* in its very large and projecting propodeal cristae and mat, densely micro-punctate and micro-setose body surface. As mentioned by Townes (1969: 180), *Cryptopteryx* easily could be synonymized with *Trachysphyrus*. However, it is not directly related to *T. townesi*. Species of *Cryptopteryx* have no clypeal tubercles and the clypeus nasutely elevated in profile; have the pronotal dorsum shallowly grooved; the notauli moderately impressed; the epomia prolonged and curved mesad above scrobe; the intercubiti weakly convergent above; the discocubitus broadly angled with a prominent ramellus; the axillus very close to the hind margin of the wing; the propodeal cristae apically sharp, thorn-like, and equally developed in both sexes; the propodeum more completely areolated with its longitudinal carinae extensively traceable; the 1st gastric segment with a weak baso-lateral flange in both sexes; and the ovipositor tip sagittate.

Field notes: The holotype and paratype females were netted from undergrowth in east Andean cloudforest about 100 km from Quito, Ecuador. Here the overstory trees (Myrtaceae, Lauraceae, etc.) support a lush epiphyton of orchids and bromeliads, tree ferns grow abundantly, and the forest floor is covered by a dense herbaceous stratum. This kind of habitat is optimum for parasitic Hymenoptera and yielded more than 100 ichneumonids in less than 2 hours. Among the "trachysphyroids" obtained at this locality in addition to *T. townesi* were 3 females and 3 males of *Cryptopteryx columbianus*. *C. columbianus* previously has been reported only from Colombia (Townes 1966: 75).

ACKNOWLEDGMENTS

My 1979 fieldwork in Ecuador was supported by a grant from the Committee for Research and Exploration of the National Geographic Society. The Division of Plant Industry of the Florida Department of Agriculture and Consumer Services generously furthered this and related projects by provision of collecting supplies, xeroxing of rare publications, and in many other ways.

Among the staff of that institution, Mr. Harold Denmark, Dr. Howard V. Weems, Jr., and Dr. Lionel A. Stange were particularly helpful.

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